# REPORT

ON THE

# CAWNPORE EXPERIMENTAL STATION

FOR THE

## KHARIF AND RABI SEASONS, 1889-90.

ALLAHABAD:

NORTH-WESTERN PROVINCES AND OUDH GOVERNMENT PRESS.

1890.

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# DEPT. OF LAND RECORDS AND AGRI., N.-W. P. AND OUDH.

*Dated Cawnpore, the 15th November* 1890.

FROM

T. W. HOLDERNESS, ESQ., C.S.,

DIR., DEPT. OF LAND RECORDS AND AGRI., N.-W. P. AND OUDH,

TO

THE CHIEF SECRETARY TO GOVERNMENT,

N.-W. PROVINCES AND OUDH.

SIR,

I HAVE the honour to submit the Report on the Government Experimental Farm at Cawnpore for the year ending the 30th June last. The report has been drawn up under my supervision by the Assistant Director, who has been in charge of the farm throughout the year.

2. The statements exhibiting the results of the several experiments have been recast, with the object both of simplifying them and of comparing for each field the averages of past years with the outturn for the year under report. This has considerably delayed the present report, as the averages had to be carefully worked out and checked.

3. Dr. Voelcker visited the farm on several occasions, and expressed his approval of the method of management and the mode of recording results. It is essential on an experimental station that there should be no doubt as to the exact yield of each field year by year, or as to its method of treatment. I am therefore pleased to know that in Dr. Voelcker's opinion the method of obtaining results and of recording them followed on the Cawnpore Farm meets the requirements of scientific accuracy. It is of the highest importance to obtain an exact register of what land in India will produce on the average of a number of years under unchanged conditions. This information is being gradually collected on the Cawnpore Farm, and it will become more valuable as the observations increase in number.

4. The yield of unmanured land in a series of years is one of the most interesting points on which information is being collected. There are a good many such plots on the farm. I give in the margin the average outturn of wheat per acre of all plots which have been without manure and under wheat for the past six years. In some of these plots the yield is possibly still affected by manure applied before the land was placed under the present series of experiments, and may be expected to decrease in future years. Taking a bushel of wheat at 61lbs., the general yield of unmanured land of the kind found on the Cawnpore Farm——a loam of average fertility cropped year after year and carefully watered and tilled——may be put at 10 to 13 bushels an acre. The American average for all the States of the Union is about 12 bushels. The English average

| | | Lbs. | |
|---|---|---|---|
| Page 11, | average for six years, | 950 | |
| „ 12, | ditto ... | 1,133 | |
| „ 13, | ditto ... | 956 | |
| „ 13, | ditto ... | 940 | |
| „ 14, | ditto .. | 659 | (average of 2 plots). |
| „ 14, | ditto ... | 596 | (ditto 6 do) |
| „ 14, | ditto ... | 614 | |
| „ 15, | ditto ... | 586 | (ditto 4 do) |

is 30 bushels. The Cawnpore experiments conclusively show that 5 to 10 bushels can be easily added to the average yield by the application of Rs. 5 worth of farmyard manure or even by green-soiling with hemp at the cost of Rs. 3-8-0 per acre. This is putting the increase at a minimum. The six years' average yield of the plot manured with farmyard manure only in the "Rabi duplicate series" is 27 bushels, and of the plot manured with *poudrette* 28 bushels. Thus we get the American average on our unmanured land and approximate to the English average on our manured. I am afraid that the American average is not unfrequent in many districts of these Provinces, especially in those where canals enable the cultivator to subject the soil to a systematic process of exhaustion.

5. As regards the comparative value of manures, the experience of the Cawnpore Farm is not favourable to artificial or extraordinary fertilizers. Bones, bone-superphosphate, gypsum, kainit, &c., are considerably more costly in this country than the common kinds of manure, and so far as they have been tried they have not given commensurate results. Green-soiling with indigo or hemp might, however, be more commonly adopted by the Indian agriculturist than at present. The cost of sowing hemp and ploughing it in when green is put at Rs. 3-8-0 an acre. But this is chiefly made up of hire of labour and bullocks, and the cultivator can find both without actual expenditure of money. In districts where indigo is not a staple crop, the fields destined for wheat (unmixed) are almost invariably left fallow in the preceding kharîf. To sow these with hemp instead of fallowing them would, according to the Cawnpore Farm Experiments, make the wheat crop heavier.

6. Most of the produce of the farm is sold to the public for seed, the seed-grain being carefully cleaned and selected. Dr. Voelcker was of opinion that this branch should be developed, and some of the minor experiments abandoned. I am considering how effect can best be given to this suggestion. The demand for good wheat, cotton, barley, and maize seed is increasing, and in endeavouring to meet it the farm can be of practical utility.

I have the honour to be,

SIR,

Your most obedient servant,

T. W. HOLDERNESS,

*Director.*

# REPORT

ON THE

# CAWNPORE AGRICULTURAL STATION,

## FOR THE KHARIF AND RABI SEASONS OF 1889-90.

Alteration in the form of the tabular statements.

THE tabular statements showing the results of the several experiments have been altered this year at the suggestion of Dr. Voelcker. They were unnecessarily elaborate and cumbersome. In the present series averages of past years have been given where possible.

Character of the year.

The year under review has been very favorable in this district (Cawnpore) for both kharif and rabi crops. The rains were all that could be wished, and the supply of canal water for irrigation has also been regular throughout the year.

All the experiments during the year under report were virtually the same as in the last years. There is hardly room for new ones. The existing experiments are considered by Dr. Voelcker fully sufficient, if not too numerous.

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The chief and important experiments are—

In kharíf with maize.

In rabi with wheat, indigo, sugarcane. Potatoes have lately been added.

Summary of experiments.

The experiments may be thus classed :—

(*a*) "Permanent" (*i.e.*, carried on year after year on the same plot of land and with the same kind of treatment) a detailed account of which will follow.

(*b*) "Temporary" in respect of duration and of land used.

The "permanent" experiments are carried on with the view to determine—

(1) Whether wheat and maize can be grown year after year on the same land by the aid of manure, deep ploughing, &c.

(2) Whether to obtain a good crop rotation is really indispensable.

(3) For how long and to what extent, without the application of manure, the soil remains capable of nourishing plant life.

(4) What constituent in soil or in a manure is more essential for the above crops, (maize and wheat) and needs to be provided artificially in case of its absence or scarcity.

(5) Whether deep ploughing and watering are enough for obtaining a good crop, or whether manure is indispensable.

The "temporary" experiments are conducted with the view to ascertain (1) the value of certain fertilizers; (2) of imported and acclimatized seeds; (3) of deep and shallow ploughing, methods of sowing, &c., &c.

Both the "permanent" and "temporary" experiments further enable us—

(*a*) to ascertain the value and utility of improved methods compared with the country way of farming;

(*b*) to form an idea of the character of the season from the result obtained on the farm.

## KHARIF SEASON EXPERIMENTS.

KHARÍF STATEMENTS I AND II.—*Experiments with maize.*—This experiment is carried on in a series of 26 plots. In 13 of these plots maize is sown year after year without any change of treatment, while the other 13 plots are alternated with maize and wheat.

The objects of this experiment have been already stated. Each of the plots, save the unmanured one, receives a special kind of manure year after year. At the time of sowing they were ploughed twice with the improved plough five inches deep, and twice with the country plough. Maize seed, six seers per acre, was sown behind the country plough. They were weeded twice and ridged up once. Sowing took place on the 13th of June.

The plants in Nos. 2, 4, 8 and 10 of the standard series were somewhat injured by rain. In Nos. 7 and 9 the plants were very vigorous and the cobs were plump and full of seed.

The subjoined statements Nos. I and II contain the result and show the difference of the produce of the several plots, which is chiefly due to the effect of different fertilizers.

Of the standard series plots (*viz.*, in which maize is sown without any alternation) poudrette, sheepdung, sheepdung mixed with bonedust and with gypsum, and plain cowdung have given good results. As a good crop of maize (say 1,600 lbs. to the acre) is worth Rs. 40 exclusive of the value of the stalks, it repays a liberal expenditure on manure.

Of the duplicate series plots (statement No. II) ashes of cowdung with saltpetre have been best of all. The yield of many plots in this series has been less than that of the corresponding plots in the standard series. This is due to their enjoying no rest, as the maize is sown two months after the wheat crop has been taken.

KHARÍF STATEMENT No. I.—*Standard series—Manure experiment with maize.*

| Manure applied per acre. | Value of manure. | Produce per acre. | | | | Increase or decrease over unmanured plot. | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Grain. | | Stalks. | | In grain. | | In stalks. | |
| | | Average for previous 4 years. | This year. | Average for previous 4 years. | This year. | Average for previous 4 years. | This year. | Average for previous 4 years. | This year. |
| | Rs. a. p. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. |
| Sheepdung 180 maunds ... | 5 6 0 | 769 | 1,198 | 4,459 | 9,862 | +163 | +920 | −427 | +5,615 |
| Poudrette 180 maunds ... | 7 3 0 | 1,036 | 1,912 | 3,943 | 8,204 | +430 | +1,634 | −943 | +3,957 |
| Ashes of 180 maunds of cowdung and saltpetre 3 maunds. | 14 6 0 | 1,222 | 1,162 | 6,619 | 9,535 | +616 | +884 | +1,733 | +5,288 |
| Saltpetre 3 maunds ... ... | 9 0 0 | 852 | 1,041 | 4,745 | 5,870 | +246 | +763 | −141 | +1,623 |
| Ditto ditto and bonedust 4½ maunds. | 19 11 0 | 935 | 1,271 | 5,696 | 10,576 | +329 | +993 | +810 | +6,328 |
| Cowdung 180 maunds ... ... | 5 6 0 | 1,031 | 1,500 | 3,537 | 7,917 | +425 | +1,222 | −1,349 | +3,670 |
| Ditto ditto and bonedust 4½ maunds. | 16 1 0 | 1,082 | 1,210 | 4,447 | 8,470 | +476 | +932 | −439 | +4,223 |
| Ditto ditto and gypsum 3 maunds. | 10 10 0 | 1,170 | 1,150 | 4,419 | 7,187 | +564 | +872 | −467 | +2,940 |
| Ashes of 180 maunds of cowdung ... | 5 6 0 | 540 | 895 | 3,708 | 7,817 | −66 | +617 | −1,178 | +3,537 |
| Sheepdung 180 maunds and bonedust 4½ maunds. | 16 1 0 | 933 | 1,827 | 5,569 | 8,180 | +327 | +1,549 | +683 | +3,933 |
| Saltpetre 3 maunds and bone-superphosphate 3 maunds. | 30 0 0 | 875 | 1,246 | 4,069 | 1,403 | +269 | +968 | −817 | −2,844 |
| Sheepdung 180 maunds and gypsum 3 maunds. | 10 10 0 | 846 | 1,706 | 4,702 | 6,304 | +240 | +1,428 | −184 | +2,057 |
| No manure ... ... ... | ... | 606 | 278 | 4,886 | 4,247 | ... | ... | ... | ... |

KHARÍF STATEMENT No. II.—*Kharíf duplicate series—Manure experiment with maize.*

| Number of plot per farm map. | Manure applied per acre. | Value of manure. | Produce per acre. | | | | Increase or decrease over unmanured plot, | | | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Grain. | | Stalks. | | In grain. | | In stalks. | | |
| | | | Average for previous four years | This year | Average for previous four years. | This year. | Average for previous four years | This year. | Average for previous four years. | This year | |
| | | Rs. a. p. | lbs | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs | |
| Alb- 1 | Sheepdung 180 maunds ... ... | 5 6 0 | 715 | 1,270 | 3,648 | 8,325 | +382 | +968 | +999 | +3,836 | The rotation on these plots is as follows They were under maize in June-September 1887. They then lay fallow till October 1888, when they were put under wheat, which was reaped in April 1889 They were then put under maize in June 1889, of which the result is given in the accompanying report. They will now lie fallow till October 1890, when they will again be sown with wheat. Thus maize follows wheat after an interval of only two months, between the reaping of the maize and the next wheat sowing a following of 13 months ensues. |
| Alb- 2 | Poudrette 180 maunds ... ... | 7 3 0 | 997 | 1,379 | 3,564 | 7,163 | +666 | +1,077 | +915 | +2,674 | |
| Alb- 3 | Ashes of cowdung 180 maunds and saltpetre 3 maunds | 14 6 0 | 743 | 1,815 | 4,083 | 6,183 | +412 | +1,513 | +1,434 | +1,694 | |
| Alb- 4 | Saltpetre 3 maunds ... ... | 9 0 0 | 627 | 1,077 | 3,362 | 6,691 | +296 | +775 | +703 | +2,202 | |
| Alb- 5 | Saltpetre 3 maunds and bonedust 4½ maunds, | 19 11 0 | 791 | 1,040 | 3,268 | 7,554 | +460 | +738 | +619 | +3,065 | |
| Alb- 6 | Cowdung 180 maunds ... ... | 5 6 0 | 748 | 1,573 | 4,030 | 6,800 | +412 | +1,271 | +1,381 | +2,311 | |
| Alb- 7 | Cowdung 180 maunds and bonedust 4½ maunds. | 16 1 0 | 806 | 1,331 | 4,160 | 7,926 | +475 | +1,029 | +1,511 | +3,437 | |
| Alb- 8 | Cowdung 180 maunds and gypsum 3 maunds, | 10 10 0 | 780 | 1,355 | 4,053 | 7,623 | +449 | +1,053 | +1,395 | +3,134 | Another point to be noticed is that in those years in which these plots are under wheat, they appear as the "rabi duplicate series" The 13 plots shown in the present report in the rabi duplicate series will appear in the report for next year (1890-91) as the kharíf duplicate series. |
| Alb- 9 | Ashes of cowdung 180 maunds ... | 5 6 0 | 503 | 920 | 2,983 | 8,688 | +172 | +618 | +334 | +4,199 | |
| Alb- 10 | Sheepdung 180 maunds and bonedust 4½ maunds. | 16 1 0 | 717 | 1,343 | 3,485 | 9,716 | +386 | +1,041 | +836 | +5,227 | |
| Alb- 11 | Saltpetre 3 maunds and bone-superphosphate 3 maunds. | 30 0 0 | 711 | 1,222 | 3,302 | 1,779 | +380 | +920 | +653 | −2,710 | |
| Alb- 12 | Sheepdung 180 maunds and gypsum 3 maunds. | 10 10 0 | 565 | 1,452 | 3,718 | 10,477 | +234 | +1,150 | +1,069 | +5,988 | |
| Alb- 13 | No manure ... ... ... | ... | 331 | 302 | 2,649 | 4,489 | ... | ... | ... | ... | |

KHARÍF STATEMENT III.—This experiment is termed "miscellaneous," and has been carried on from 1884, in a series of eight plots each measuring 400 square yards.

These plots were sown with the usual quantity of seed, 6 seers per acre, on the 12th of June. Ploughing and weeding was done as in No. I experiment.

The plants in Nos. 1, 2, 3 and 5 of this series grew too luxuriantly and were afterwards beaten down by heavy rain. Some damage was also done by wild pig. No. 1, as usual, gave the best results. The tendency of saltpetre to increase stalk rather than seed is noticeable.

KHARÍF STATEMENT No. III.—*Miscellaneous manure experiment with maize.*

| Number of plot per farm map. | Manure applied per acre. | | Value of manure per acre. | Produce per acre. | | | | Increase or decrease over unmanured plot, | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Grain. | | Stalks. | | In grain. | | In stalks. | |
| | | | | Average for previous 5 years. | This year. | Average for previous 5 years. | This year. | Average for previous 5 years. | This year. | Average for previous five years. | This year. |
| | | | Rs. a p. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. |
| N. 1 | Woollen refuse | 120 maunds ... | 6 0 0 | 1,594 | 2,226 | 6,706 | 8,966 | +936 | +1,258 | +3,596 | +2,129 |
| N. 2 | Sheepdung | 120 „ ... | 3 10 0 | 983 | 1,573 | 4,594 | 7,901 | +325 | +605 | +1,484 | +1,064 |
| N. 3 | Cowdung | 120 „ ... | 3 10 0 | 697 | 1,488 | 3,433 | 9,704 | +39 | +520 | +323 | +2,867 |
| N. 4 | Poudrette | 120 „ ... | 4 13 0 | 1,067 | 1,604 | 4,744 | 9,922 | +409 | +726 | +1,634 | +3,085 |
| N. 5 | Horsedung | 120 „ ... | 3 10 0 | 1,002 | 1,331 | 4,957 | 9,741 | +344 | +363 | +1,847 | +2,004 |
| N. 6 | Pigdung | 120 „ ... | 3 10 0 | 1,103 | 1,150 | 5,579 | 9,051 | +445 | +182 | +2,469 | +2,114 |
| N. 7 | Saltpetre, | 3 „ ... | 9 0 0 | 954 | 1,355 | 4,405 | 9,898 | +296 | +387 | +1,295 | +3,061 |
| N. 8 | No manure | ... ... | ... | 658 | 968 | 3,110 | 6,837 | ... | ... | ... | ... |

KHARÍF STATEMENT IV.—This experiment is for five years, which term has expired this year. Its object is to determine the comparative result of sowing maize on ridges after the American fashion at the distance of one, two and three feet.

All the plots of this series were kept under the same treatment throughout the season, *viz.*, were all ploughed, sown, and weeded on the same days. They were sown on the 10th of June. The number of ploughing and weeding was the same as in the foregoing cases.

The cobs in plots Nos. 1, 2 and 3 were very stout and good.

This year the plots sown on ridges have produced more than the plot sown by ordinary method, but this is contrary to the results generally obtained in previous years. The plots Nos. 1 and 4 were beaten down by the rain and suffered to a certain extent.

KHARÍF STATEMENT No. IV.—*Maize sown after American fashion.*

| Number of plot per farm map. | Mode of sowing. | Produce per acre. | | | | Increase or decrease over ordinary cultivated crop. | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Grain. | | Stalks. | | In grain. | | In stalk. | |
| | | Average for previous 4 years. | This year. | Average for previous 4 years. | This year. | Average for previous 4 years. | This year. | Average for previous 4 years. | This year. |
| | | lbs. | lbs. | lbs. | lbs. | lbs | lbs. | lbs. | lbs. |
| 26D1 | One foot apart ... ... ... | 1,009 | 2,300 | 3,800 | 10,400 | − 549 | +660 | − 471 | − 752 |
| 26D2 | Two feet apart ... ... ... | 740 | 2,108 | 2,365 | 8,664 | − 818 | +468 | −1,906 | −2,488 |
| 26B1 | Three ditto ... ... ... | 554 | 1,876 | 1,910 | 5,784 | −1,004 | +236 | −2,361 | −5,368 |
| 26B2 | After country fashion... ... ... | 1,558 | 1,640 | 4,271 | 11,152 | ... | ... | ... | ... |

KHARIF STATEMENT V.—This experiment is to contiuue for five years, three of which have expired; as a rule, early sowing for all kharíf crops is good. It has generally proved to be true on the farm.

Rainy season crops are often liable to damage. If cultivators can afford to maintain an early sown crop till the rain sets in, they are pretty sure to keep it free from damage. But one or two waterings are necessary.

In the season under review one plot was sown on the 18th of May and the other on the 6th of June.

Except in respect of early sowing and weeding, all the plots were subject to the same kind of treatment, being ploughed and weeded three times and sown with maize seed six seers per acre.

The early sown plot looked very healthy throughout the season. It was beaten down by rain, but, notwithstanding, its produce was best. The same result has always been obtained.

KHARÍF STATEMENT No. V.—*Experiment in early and late sowing of maize.*

| Number of plot per farm map. | Mode of sowing. | Produce per acre. | | | | Increase or decrease, | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Grain. | | Stalks. | | In grain. | | In stalks. | |
| | | Average for previous 2 years. | This year. | Average for previous 2 years. | This year. | Average for previous 2 years. | This year. | Average for previous 2 years. | This year. |
| | | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. |
| 35B | Sown early ... ... ... | 958 | 2,882 | 3,119 | 7,090 | +37 | +929 | −64 | +1,450 |
| 35Aa-c | Sown late ... ... ... | 921 | 1,953 | 3,183 | 5,640 | ... | ... | ... | ... |

KHARÍF STATEMENT VI.—This experiment is to determine the effect of certain manures on cotton, and is to be carried on for five years, two of which have passed. This series consists of six plots each of 400 square yards. All the plots were sown on the 14th June; the cotton picking began from the 26th of September; six seers of seed per acre were sown. Ploughing was done twice with the improved plough, and weeding three times.

Plots Nos. 1, 3 and 4 were covered with water soon after sowing. Every possible care was taken to drain the water off, but the seed in the plots germinated very badly. At the time of flowering a heavy shower of rain came on and damaged the blossoms. Plots Nos. 3 and 4 suffered more from a fungoid disease (which has done great injury to cotton, especially to the country variety) than the other plots in the series.

Woollen refuse in this case also has beaten other manures. The silt from canal has come out next. All other kinds of manure have added more or less to the yield.

KHARÍF STATEMENT No. VI.—*Experiment as to the effect of certain manures on cotton.*

| Number of plot per farm map. | Manure applied per acre. | Value of manure per acre. | Produce per acre. | | | |
|---|---|---|---|---|---|---|
| | | | Cleaned cotton. | | Seed. | |
| | | | Result of last year. | This year. | Result of last year. | This year. |
| | | Rs. a. p. | lbs. | lbs. | lbs. | lbs. |
| Ab-1 | Fresh silt from canal 500 maunds, ... | 1 4 0 | 169 | 121 | 278 | 194 |
| Ab-2 | Kainit 4 maunds and gypsum 4 maunds ... | 12 8 0 | 181 | 97 | 315 | 169 |
| Ab-3 | Farm yard manure 180 maunds and gypsum 1 maund 14½ seers. | 7 12 0 | 218 | 73 | 363 | 133 |
| Ab-4 | Farm yard manure 180 maunds and kainit 1 maund 14½ seers. | 8 3 0 | 230 | 97 | 375 | 157 |
| Ab-5 | Woollen refuse, 120 maunds ... ... | 3 9 0 | 290 | 133 | 482 | 230 |
| Ab-6 | No manure ... ... ... | ... | 145 | 61 | 242 | 121 |

KHARÍF STATEMENT VII.—This is the second year out of five of this experiment. It is to test the vitality of imported seed and to compare the yield of different varieties of cotton, as well as to observe their suitability for the soil and the climate of this country.

The seed of three varieties (1) S. B. Mexcy, (2) Jones' Improved, (3) Shine's Early Prolific was obtained fresh from America during the year before last.

Seed to the amount of six seers the acre was sown on the 20th of June; picking of cotton commenced from 5th of October. The foreign varieties matured in about as many days as the country one, but they were less affected by fungoid disease, which much injured the country variety. Plots Nos. 4 and 5 suffered from waterlogging. The difference in the yield of the several plots is not great.

KHARÍF STATEMENT No. VII—*Experiment with different varieties of improved cotton seed.*

| Number of plot. | Variety of cotton sown. | Produce per acre. | | | | Remarks. |
|---|---|---|---|---|---|---|
| | | Cleaned cotton. | | Seed. | | |
| | | Result of last year. | This year. | Result of last year. | This year. | |
| | | lbs. | lbs. | lbs. | lbs. | |
| 41Aa | Upland Georgian ... ... | 111 | 160 | 235 | 365 | |
| 41Ab | Tree cotton ... ... | 138 | 148 | 332 | 354 | |
| 41Ac | Louisiana ... ... | 111 | 194 | 263 | 457 | |
| 41Ad | Garo Hills ... ... | 97 | 194 | 263 | 308 | |
| 41Ae | Hybrid ... ... | 166 | 183 | 249 | 445 | |
| 41Af | Sea Island ... ... | 83 | 194 | 207 | 514 | |
| 41Ag | Egyptian .. ... | 97 | 194 | 235 | 434 | |
| 41Ah | Hinganghat ... ... | 97 | 183 | 221 | 457 | |
| 19f | S B Mexcy (Texas) ... ... | 24 | 180 | 48 | 320 | |
| 19e | Shine's Early Prolific ... ... | 24 | 140 | 48 | 280 | |
| 19g | Jones' improved ... .. | 24 | 180 | 48 | 360 | |
| 19h | Country ... ... | ... | 180 | ... | 320 | |

KHARÍF STATEMENT VIII.—Fresh imported seed from America was sown early and late, in order to see whether the heavy rains of India affect it. Four of these plots were sown on the 29th of May, and the other corresponding four on the 28th of June. Picking of all of them began from the 2nd of November. Weeding was done twice and also ploughing.

Fungoid disease attacked all the plots to a certain extent, especially plot No. IV, which was greatly injured. But in this case also the imported varieties suffered less than the country one.

KHARÍF STATEMENT No. VIII—*Experiment in the early and late cotton sowing.*

| Number of plot. | Variety of cotton sown. | | Produce per acre. | | | | Remarks. |
|---|---|---|---|---|---|---|---|
| | | | Cleaned cotton. | | Seed. | | |
| | | | Result of last year. | This year. | Result of last year. | This year. | |
| | | | lbs. | lbs. | lbs. | lbs. | |
| 19a | Sown before rain. | S. B. Mexcy (Texas) ... | 100 | 240 | 180 | 440 | |
| 19b | | Shine's Early Prolific ... | 100 | 180 | 220 | 360 | |
| 19c | | Jones' Improved ... | 90 | 120 | 210 | 280 | |
| 19d | | Country ... | ... | 180 | ... | 300 | |
| 19f | Sown after rain. | S. B. Mexcy (Texas) ... | 24 | 180 | 48 | 320 | |
| 19e | | Shine's Early Prolific ... | 24 | 140 | 48 | 280 | |
| 19g | | Jones' Improved ... | 24 | 180 | 48 | 360 | |
| 19h | | Country ... | ... | 180 | ... | 320 | |

KHARÍF STATEMLNTS IXa, IXb.—*Experiment with sugarcane.*—This experiment is to be carried on for five years, and is (*a*) to determine the comparative value of four varieties of cane, the seed of which was obtained two years ago from three of the best sugargrowing districts; (*b*) to ascertain whether sowing in lines, as practised in the

West Indies, has any advantage over the indigenous way of sowing; (c) to ascertain what is the economy of keeping *peri*, *viz.*, taking a second crop of sugarcane from the roots of the cane harvested a year previous.

The cane was sown on the 19th and 20th of March. The top pieces of the cane, which are of no use for milling or chewing, were used for seed. In India the cultivators as a rule sow the whole cane, which, of course, is a loss to the grower. The field was ploughed four times with the improved plough and was weeded and hand-hoed four times, after watering.

The season was highly favourable for sugarcane. The canes grew very high. Had they not been supported with bamboos they would have fallen on the ground.

The tabular statement shows that in each case the native method of sowing has yielded a heavier crop. In the season under review the Sháhjahánpur variety has proved to be the best of all in respect of the weight of cane, it has not been inferior in the percentage of juice also.

The next statement gives the detail of the produce of the *peri* field. The Shahjahánpur variety has proved good in this case also.

As the canes in the *peri* plots did not grow so high as in the newly-sown field, they did not suffer by being lodged. But the Sháhjahánpur cane was attacked by whiteants and was injured by drought. The field was turned once on the 8th of May with an earth turning plough and top-dressed with farmyard manure. It was watered five times. On the whole the yield of the *peri* plots was very good this year.

The yield of *peri* may be put at $\frac{3}{4}$rds of the first year's yield. The economy in expenditure is (1) in rent, the field being occupied only one year, against two: (2) in seed cane: (3) in preliminary ploughings and in subsequent hoeings and weedings.

KHARÍF STATEMENT No. IX*a*.—*Experiment* (1) *in the yield of different varieties of sugarcane and* (2) *in native and West Indian method of sowing.*

| Number of plot per farm map | Detail of experiment. | Weight of cane per acre. | | Weight of juice per acre | | Percentage of juice. |
|---|---|---|---|---|---|---|
| | | Average for previous two years | This year. | Average for previous two years. | This year. | |
| | *Behea seed (Mango or Dhaul)* | lbs. | lbs. | lbs. | lbs. | Per cent. |
| 24a | Sown in line ... ... ... | 13,487 | 14,520 | 6,867 | 7,421 | 51 |
| 24b | Sown in the indigenous way ... ... | 21,342 | 17,747 | 10,507 | 9,196 | 52 |
| | *Sháhjahánpur seed (Dekchan.)* | | | | | |
| 24c | Sown in line ... ... ... | 11,140 | 14,117 | 5,554 | 7,260 | 51 |
| 24d | Sown in the indigenous way ... ... | 11,112 | 25,813 | 7,052 | 13,310 | 52 |
| | *Moradabad seed (Baraukha.)* | | | | | |
| 24e | Sown in line ... ... ... | 15,689 | 13,310 | 7,516 | 6,857 | 52 |
| 24f | Sown in the indigenous way ... ... | 20,023 | 22,183 | 9,917 | 11,293 | 51 |
| | *Country (Maina).* | | | | | |
| 24g | Sown in line ... ... ... | 21,639 | 16,779 | 12,142 | 8,712 | 52 |
| 24h | Sown in the indigenous way ... .. | 27,040 | 21,780 | 12,430 | 11,293 | 52 |

KHARÍF STATEMENT No. IXb.—*Experiment to determine the economic value of "Peri" (second year cane stock).*

| Number of plot per farm map. | Detail of experiment. | Weight of cane per acre. | | Weight of juice per acre. | |
|---|---|---|---|---|---|
| | | Average for last year. | This year. | Average for last year. | This year. |
| | | lbs. | lbs. | lbs. | lbs. |
| | *Peri of Behea seed (Mango or Dhaul).* | | | | |
| 36a | Sown in line .. ... ... ... | 6,937 | 13,200 | 3,442 | 7,520 |
| 36b | Sown in the indigenous way ... ... | 5,571 | 14,600 | 4,458 | 7,440 |
| | *Peri of Shâhjahânpur (Dekchan).* | | | | |
| 36c | Sown in line ... ... ... ... | ... | 14,160 | ... | 7,200 |
| 36d | Sown in the indigenous way ... ... | ... | 17,760 | ... | 9,520 |
| | *Peri of Moradabad seed (Baraukha).* | | | | |
| 36e | Sown in line ... ... ... ... | 13,934 | 16,000 | 6,502 | 8,080 |
| 36f | Sown in the indigenous way ... ... | 14,913 | 17,200 | 7,066 | 8,960 |
| | *Peri of country seed (Matna).* | | | | |
| 38g | Sown in line ... ... ... ... | 11,831 | 7,800 | 6,297 | 4,160 |
| 36h | Sown in the indigenous way ... ... | 1,816 | 13,000 | 7,416 | 6,960 |

KHARÍF STATEMENT X.—This experiment is to ascertain the effect of gypsum on indigo, it will be carried on for five years. This is the second year.

This series consists of three plots, one is kept unmanured, in the 2nd gypsum is ploughed in, and the 3rd is top-dressed with gypsum when the plant is about four inches high. The seed was sown on the 14th of April; one watering was given.

In plots 1 and 3 the seed did not germinate well.

This year again the plots with gypsum have produced more than the unmanured plot. Gypsum ploughed in has given a better result than top-dressing.

Another experiment with indigo was to determine the effect of early and late sowing with and without gypsum. The early-sown plots gave a fair crop, but the late-sown one did not germinate at all.

KHARÍF STATEMENT No. X.—*Determination of the effect of gypsum on indigo.*

| Number of plot per farm map. | Treatment. | Average yield of green indigo per acre. | | Increase or decrease over unmanured crop. | | Remarks. |
|---|---|---|---|---|---|---|
| | | Result of last year. | This year. | Result of last year. | This year. | |
| | | lbs. | lbs. | lbs. | lbs. | |
| P1—4 | Gypsum applied 4 maunds per acre and ploughed in as manure. | 2,542 | 14,387 | + 574 | + 5,209 | The cost of the gypsum was at the rate of Rs. 7 per acre. |
| P5—8 | Top-dressed with gypsum when plants were six inches high. | 2,214 | 11,906 | + 246 | + 2,728 | |
| P9—12 | No manure ... ... | 6,819 | 9,178 | ... | ... | |

KHARÍF STATEMENT XI.—In this series of 17 plots, each of 400 square yards, millet and other rain crops are sown. This is to continue for five years, two of which have passed. This experiment is to test the comparative value of the ordinary rain crops cultivated in these provinces, and to record the results of sowing mixed crops.

These plots were sown on the 24th of June and were ploughed and weeded twice.

During the season under review many of the plots, especially those containing *mung*, *moth* (pulses) *til* (oilseed) and *rendi* (castor-oil) were greatly damaged.

KHARÍF STATEMENT NO. XI—*Experiment in outturn of miscellaneous kharíf crop.*

| Number of plot per farm map. | Crop. | Produce per acre. | | | |
|---|---|---|---|---|---|
| | | Grain. | | Stalks. | |
| | | This year. | Result of last year. | This year. | Result of last year. |
| | | lbs. | lbs. | lbs. | lbs. |
| Mt- 1 | Cotton ... ... ... | ... | 30 | ... | 54 |
| | and Arhar ... ... ... | ... | 786 | ... | 544 |
| Mt- 2 | Jowar for chari ... ... | ... | ... | 6,195 | 12,039 |
| Mt- 3 | Urd ... ... ... | 73 | 194 | 423 | 968 |
| Mt- 4 | Mung ... ... ... | 121 | 157 | 484 | 908 |
| Mt- 5 | Moth ... ... ... | 799 | 121 | 968 | 799 |
| Mt- 6 | Lobia ... ... ... | 315 | 726 | 1,198 | 1,996 |
| Mt- 7 | Bajra and arhar ... ... | 97 | 1,162 | 2,638 | 3,666 |
| Mt- 8 | Bajra ... ... ... | 121 | 460 | 3,920 | 2,130 |
| Mt- 9 | Jowar ... ... ... | 423 | 1,029 | 5,905 | 9,075 |
| Mt- 10 | Jowar and arhar ... ... | 363 | 1,028 | 5,046 | 7,913 |
| Mt- 11 | Til ... ... ... | 85 | 121 | 605 | 1,149 |
| Mt- 12 | Arhar ... ... ... | 436 | 738 | 1,089 | 2,238 |
| Mt- 13 | Hemp ... ... ... | 290 | 557 | 1,355 | 3,630 |
| Mt- 14 | Kodon ... ... ... | 206 | 339 | 726 | 544 |
| Mt- 15 | Merwa ... ... ... | ... | 605 | ... | 1,041 |
| Mt- 16 | Khurti ... ... ... | 1,718 | 363 | 1,960 | 2,686 |
| Mt- 17 | Castor seed ... ... ... | ... | 303 | ... | 2,565 |

## RABI SEASON EXPERIMENTS.

Rabi season experiments.

As stated before, the rabi season experiments are chiefly restricted to wheat. Potato, barley, peas and gram have lately been added to the list; but these in comparison with wheat occupy very little ground.

In the season under review there were altogether 35 bighas and 18 biswas (about 18 acres) under wheat and the total yield was 311 maunds 24½ seers. The average yield was 17¼ maunds or 22 bushels the acre. The highest yield was on plot No. 3 of the duplicate series, and reached the high figure of 45¼ bushels per acre. This is an altogether exceptional yield for any plot on the farm in any past year. The next best plot yielded 36 bushels.

The season was very favorable for wheat; no disease appeared. The grain was well matured and the ears were long and full.

The rabi season experiments may be divided into two sub-heads, *viz.*, permanent and temporary. In the season under report, besides the six permanent experiments there were ten temporary experiments in the programme.

RABI EXPERIMENTS I AND II.—*Experiments with wheat.*—In the list of permanent experiments, the "standard" and "duplicate" series stand first. These two series consist of 26 plots. In 13 plots wheat is sown year after year, while the other 13 plots termed "duplicate" are cropped one year with wheat and another year with maize. Each plot receives a special kind of manure year after year.

The experiment is to determine (*a*) the effect of ordinary and artificial manures on wheat, (*b*) the utility of rotation, and (*c*) how long wheat can be grown year after year on the same land, and which manure best returns to the soil what the plant consumes.

In this season, as usual, Muzaffarnagar seed at the rate of 60 seers per acre was sown on the 21st of October. The plots were ploughed twice with the improved plough and twice with the country plough; they were weeded once and watered three times.

The seed in plots Nos. 2 and 3 of the standard series did not germinate well and they were also affected a little with frost. The ears in the plots Nos. 1—4 and 12 compared with other plots, were big, plump and full.

It will be seen from the statement that in the majority of cases the produce of the duplicate plots was greater than that of the corresponding plots in the standard series. This has also been the result of past years' experiments. Between the harvesting of the maize crop and the sowing of the wheat, a fallow period of 13 months intervenes. This period of rest conjoined with manure seems to restore to the soil all it wants. But the maize crop, which follows wheat in the duplicate series after a period of only two months, suffers from the rotation, as the kharíf experiments show.

The best yield of all was on plot No. 3 of the duplicate series, which gave 35 maunds or 45¼ bushels the acre. The unmanured plot in the duplicate series gave 23½ maunds or 30 bushels. This is a remarkable outturn for land which has not received a particle of manure for the last seven years and is cropped four times every three years. The average produce of this plot is much below the yield recorded this year.

RABI STATEMENT No. I.—*Standard series—Manure experiment with wheat.*

| Number of plots per farm map. | Manure applied per acre. | Value of manure per acre. | Produce per acre. | | | | Increase or decrease over unmanured plot per acre, | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Grain. | | Straw. | | In grain. | | In straw. | |
| | | | Average for previous five years. | This year. | Average for previous five years. | This year. | Average for previous five years. | This year. | Average for previous five years. | This year. |
| | | Rs. a. p. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. |
| R- 1 | Saltpetre 3 maunds ... ... ... ... | 9 0 0 | 1,314 | 1,646 | 2,575 | 3,666 | +426 | +339 | +932 | +1,440 |
| R- 2 | Saltpetre 3 maunds and bonedust 4½ maunds ... ... ... | 19 11 0 | 1,398 | 1,113 | 2,541 | 1,838 | +510 | −194 | +898 | − 338 |
| R- 3 | Cowdung 180 maunds ... ... ... ... | 5 6 0 | 1,184 | 1,585 | 2,480 | 2,807 | +296 | +278 | +837 | + 581 |
| R- 4 | Cowdung 180 maunds and bonedust 4½ maunds ... ... | 16 1 0 | 1,538 | 1,767 | 2,077 | 3,424 | +650 | +460 | +434 | +1,198 |
| R- 5 | Cowdung 180 maunds and gypsum 3 maunds ... ... ... | 10 10 0 | 1,258 | 1,525 | 2,459 | 3,098 | +370 | +218 | +816 | + 872 |
| R- 6 | Sheepdung 180 maunds ... ... ... ... | 5 6 0 | 1,239 | 1,730 | 2,054 | 3,061 | +351 | +424 | +411 | + 835 |
| R- 7 | Ashes of 180 maunds of cowdung ... ... ... ... | 5 6 0 | 829 | 1,416 | 1,731 | 2,823 | — 59 | +109 | + 88 | + 97 |
| R- 8 | Sheepdung 180 maunds and bonedust 4½ maunds ... ... | 16 1 0 | 1,049 | 1,513 | 1,777 | 2,565 | +161 | +206 | +134 | + 339 |
| R- 9 | Saltpetre 3 maunds and bone superphosphate 3 maunds ... ... | 30 0 0 | 1,131 | 1,585 | 2,071 | 3,219 | +243 | +278 | +428 | + 993 |
| R- 10 | Sheepdung 180 maunds and gypsum 3 maunds ... ... | 10 10 0 | 1,177 | 1,319 | 2,321 | 2,239 | +289 | + 12 | +678 | + 13 |
| R- 11 | No manure ... ... ... ... ... ... | ... | 888 | 1,307 | 1,643 | 2,226 | ... | ... | ... | .. |
| R- 12 | Poudrette 180 maunds ... ... ... ... ... | 7 3 0 | 1,253 | 1,706 | 2,076 | 3,231 | +365 | +399 | +433 | +1,005 |
| R- 13 | Ashes of 180 maunds of cowdung and saltpetre 3 maunds ... | 14 6 0 | 1,208 | 1,343 | 2,166 | 2,493 | +320 | + 36 | +523 | + 267 |

STATEMENT No. II.—*Duplicate series—Manure experiment with wheat.*

| Number of plot per farm map. | Manure applied per acre. | Value of manure per acre. | Produce per acre. | | | | Increase or decrease over unmanured plot per acre, | | | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Grain. | | Straw. | | In grain | | In straw. | | |
| | | | Average for previous 5 years. | This year. | Average for previous 5 years. | This year. | Average for previous 5 years. | This year. | Average for previous 5 years. | This year. | |
| | | Rs. a. p. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs | lbs. | lbs | |
| Ala-1 | Saltpetre 3 maunds ... ... ... | 9 0 0 | 1,416 | 1.670 | 2,732 | 2,952 | +431 | −206 | +740 | −702 | The rotation is as follows :— |
| Ala-2 | Saltpetre 3 maunds and bonedust 4½ maunds ... | 19 11 0 | 1,726 | 2,239 | 3,011 | 4,162 | +741 | +363 | +1,019 | +508 | October 1886 to March 1887. ... Wheat. |
| Ala-3 | Cowdung 180 maunds ... ... ... | 5 6 0 | 1,394 | 2,856 | 2,432 | 5,784 | +409 | +980 | +440 | +2,230 | June 1887 ... ... ... Maize. |
| Ala-4 | Cowdung 180 maunds and bonedust 4½ maunds ... | 16 1 0 | 1,339 | 1,634 | 1,913 | 3,473 | +354 | −242 | −79 | −181 | October 1887 to March 1888 ... Wheat. |
| Ala-5 | Cowdung 180 maunds and gypsum 3 maunds ... | 10 10 0 | 1,361 | 1,513 | 2,474 | 3,061 | +386 | −363 | +482 | −593 | June 1888 ... ... ... Maize. |
| Ala-6 | Sheepdung 180 maunds ... ... ... | 5 6 0 | 1,507 | 1,488 | 3,383 | 2,638 | +522 | −387 | +1,391 | −1,016 | October 1889 to March 1890 ... Wheat. |
| Ala-7 | Ashes of 180 maunds of cowdung ... ... | 5 6 0 | 1,157 | 1,730 | 1,638 | 3,848 | +172 | −145 | +354 | +194 | When these fields are under maize they appear in the kharif experiments as "duplicate kharif series." The fields shown in the present report in the duplicate kharif series will be cropped in October 1890 with wheat and be shown as duplicate rabi series in next year's report. |
| Ala-8 | Sheepdung 180 maunds and bonedust 4½ maunds ... | 16 1 0 | 1,462 | 1,621 | 2,539 | 3,279 | +477 | −254 | +547 | −375 | |
| Ala-9 | Saltpetre 3 maunds and bone superphosphate 3 maunds, | 30 0 0 | 1,180 | 1,367 | 2,561 | 2,335 | +195 | −503 | +569 | −1,319 | |
| Ala-10 | Sheepdung 180 maunds and gypsum 3 maunds ... | 10 10 0 | 1,385 | 1,537 | 2,643 | 2,856 | +400 | −339 | +651 | −798 | |
| Ala-11 | No manure ... ... ... ... | ... | 9,85 | 1,876 | 1,992 | 3,654 | ... | ... | ... | ... | |
| Ala-12 | Poudrette 180 maunds ... ... ... | 7 3 0 | 1,652 | 2,045 | 3,044 | 4,150 | +667 | +73 | +1,052 | +496 | |
| Ala-13 | Ashes of 180 maunds of cowdung and saltpetre 3 maunds. | 14 6 0 | 1,405 | 1,428 | 2,655 | 2,650 | +420 | −448 | +663 | −1,004 | |

Area of each plot is 400 square yards.

RABI STATEMENT III.—This experiment consists of 13 plots named "*green manure series;*" each plot is of 400 square yards. The experiment is to determine the manurial value of hemp and indigo, which is applied to wheat in certain farms.

In 1889 all these plots were sown with Muzaffarnagar wheat on the 15th of October, being ploughed twice with the improved and twice with the country plough. They were weeded once and watered three times.

The plots Nos. 3, 4, 8 and 10 being rather wet at the time of sowing, did not germinate well and were attacked by whiteants; Nos. 1, 2 and 7 did well.

Indigo refuse and indigo water are not always obtainable by cultivators. But green hemp costs very little to sow and plough in during the preceding rains, and represents the cheapest form of manure which the cultivator can obtain. It has the drawback that it prevents the field bearing a *dofasli* crop. But where a cultivator is unable to give his land farmyard manure, he cannot hope to crop it twice as a regular thing, and by green-soiling he can both rest it and improve it.

RABI STATEMENT No. III—*Green manure series.*

| No. of plot per farm map. | Manure applied per acre. | Value of manure per acre | Produce per acre. | | | | Increase or decrease over unmanured plot per acre. | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Grain. | | Straw. | | In grain. | | In straw. | |
| | | | Average for previous five years. | This year | Average for previous five years. | This year. | Average for previous five years. | This year. | Average for previous five years. | This year. |
| | | Rs. a. p | lbs. | lbs | lbs. | lbs | lbs. | lbs. | lbs. | lbs. |
| Aa- 1 | Old indigo refuse 120 maunds ... | 1 3 0 | 1,345 | 1,912 | 2,508 | 4,053 | +490 | +448 | +843 | +1,318 |
| Aa- 2 | Fresh indigo refuse 120 maunds and lime six maunds. | 2 6 0 | 1,476 | 1,742 | 2,582 | 3,715 | +621 | +278 | +917 | +980 |
| Aa- 3 | Indigo water 3,600 cubic feet ... | 3 0 0 | 875 | 1,222 | 1,815 | 2,493 | +20 | −242 | +150 | −242 |
| Aa- 4 | Hemp water 3,600 cubic feet ... | 3 0 0 | 894 | 1,162 | 1,679 | 2,166 | +39 | −302 | +14 | −569 |
| Aa- 5 | No manure ... ... ... | ... | 855 | 1,464 | 1,665 | 2,735 | ... | ... | ... | ... |
| Aa- 6 | Wheat sown after a hemp crop had been taken, ... | ... | 947 | 1,900 | 1,863 | 3,110 | −36 | +811 | +507 | +899 |
| Aa- 7 | Green hemp ploughed in ... ... | 3 8 0 | 1,079 | 1,972 | 2,099 | 4.005 | +168 | +883 | +833 | +1,794 |
| Aa- 8 | Green indigo ploughed in ... ... | 8 0 0 | 1,099 | 1,670 | 2.405 | 2,977 | +188 | +581 | +1,139 | +766 |
| Aa- 9 | Wheat sown after indigo crop ... ... | ... | 1,279 | 1,488 | 2,455 | 2,650 | +368 | +399 | +1,189 | +439 |
| Aa- 10 | Green indigo ploughed in and gypsum 6 maunds, | 18 8 0 | 1,396 | 1,319 | 2,559 | 2,178 | +485 | +230 | +1,293 | −38 |
| Aa- 11 | Green hemp ploughed in and gypsum 6 maunds., | 14 0 0 | 1,117 | 1,452 | 1,873 | 2,698 | +206 | +363 | +607 | +487 |
| Aa- 12 | No manure ... ... ... | ... | 911 | 1,089 | 1,266 | 2,211 | ... | ... | ... | ... |
| Aa- 13 | Alternate with lucerne ... ... | ... | 856 | 1,174 | 1,999 | 2,263 | −55 | +85 | +733 | +52 |

RABI STATEMENT IV.—This is to confirm the result of some of the plots in the foregoing experiment and is carried on in fields of larger size than the plots of the last noted series. These plots were sown on the 24th and 25th of October with the same kind of wheat (Muzaffarnagar) at the same rate 60 seers per acre; they had been ploughed twice with the improved and country ploughs respectively. Weeding was done once and watering twice.

The following statement shows that the outturn per acre is larger with indigo than with hemp. But even hemp considerably increases the yield. The hemp plots at the time of sowing had less moisture than the indigo field, hence the seed in them germinated late.

RABI STATEMENT No. IV—*Green manure experiment with wheat.*

| Number of plot per farm map. | Manure applied per acre. | Value of manure per acre. | Produce per acre. | | | | Increase or decrease per acre over unmanured plot per acre, | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Grain. | | Straw. | | In grain. | | In straw. | |
| | | | Average for previous 5 years. | This year. | Average for previous 5 years. | This year. | Average for previous 5 years. | This year. | Average for previous 5 years. | This year. |
| | | Rs. a. p | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. |
| 32A & L | Fresh indigo refuse 120 maunds and lime 6 maunds. | 2 6 0 | 1,066 | 1,458 | 2,263 | 2,710 | +437 | +647 | +884 | +647 |
| 32B & K | Fresh indigo refuse 120 maunds ... | 1 3 0 | 881 | 1,361 | 1,812 | 2,420 | +252 | +551 | +433 | +550 |
| 32C & J | Old indigo refuse 120 maunds and lime 6 maunds. | 2 6 0 | 939 | 1,186 | 1,812 | 2,414 | +210 | +375 | +433 | +375 |
| 32D & I | Old indigo refuse 120 maunds ... | 1 3 0 | 868 | 1,422 | 677 | 2,414 | +239 | +611 | +298 | +611 |
| 32E & H | No manure (average of two plots), | ... | 629 | 811 | 1,379 | 1,537 | ... | ... | ... | ... |
| 31A-D & 33A-C | Hemp ploughed in (average of seven plots). | 3 8 0 | 1,131 | 1,122 | 2,228 | 2,392 | +512 | +638 | +990 | +1,484 |
| 31F-I & 33D-E | No manure (average of six plots) ... | ... | 619 | 484 | 1,238 | 908 | ... | ... | ... | ... |

RABI STATEMENT V.—This experiment is tried in a series of eight plots and is to determine the manurial value of certain things (mostly rubbish) not in the list of manures ordinarily used.

In this season these plots were sown on the 19th of October. Plots Nos. 4, 5 and 7 did not germinate well.

The statement shows (1) that all the manured plots have produced something more than the unmanured one in the series; (2) that compost and ashes of weed with saltpetre confirms the result obtained last year; (3) that the brick-kiln refuse and silt also have acted well.

RABI STATEMENT No. V—*Miscellaneous manure series.*

| Number of plot per farm map. | Manure applied per acre. | Value of manure per acre. | Produce per acre | | | | Increase or decrease over unmanured plot per acre, | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Grain. | | Straw. | | In grain. | | In straw. | |
| | | | Average for previous 5 years | This year. | Average for previous 5 years | This year. | Average for previous 5 years. | This year. | Average for previous 5 years | This year. |
| | | Rs. a. p. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. |
| M-1 | Brick kiln refuse 120 maunds, ... | 1 12 0 | 828 | 1,113 | 1,654 | 2,069 | +212 | +508 | +240 | + 607 |
| M-2 | Silt 300 maunds ... | 0 12 0 | 927 | 1,065 | 1,509 | 1,670 | +311 | +460 | + 95 | + 508 |
| M-3 | Compost 200 maunds ... | 6 0 0 | 874 | 1,210 | 1,677 | 2,166 | +258 | +605 | +263 | + 1,004 |
| M-4 | Road scraping 300 maunds ... | 4 11 0 | 952 | 980 | 1,847 | 1,755 | +336 | +375 | +433 | + 593 |
| M-5 | Ashes of 120 maunds of weeds, ... | 4 0 0 | 741 | 641 | 1,394 | 1,125 | +125 | + 36 | — 20 | — 37 |
| M-6 | Ashes of 120 maunds of weed & 3 maunds saltpetre. | 13 0 0 | 943 | 1,029 | 1,900 | 2,190 | +327 | +424 | +486 | + 1,028 |
| M-7 | Ammonic chloride, 3 maunds ... | 45 0 0 | 865 | 629 | 1,740 | 1,476 | +249 | + 24 | +301 | + 326 |
| M-8 | No manure ... ... | ... | 616 | 605 | 1,414 | 1,162 | ... | ... | ... | ... |

RABI STATEMENT VI.—This experiment is to determine the advantages of deep ploughing with an improved plough against shallow ploughing with the country one.

This experiment also belongs to the list of permanent experiments and is conducted in two series, one containing four and the other three plots. These series are shown in the statement under the heads A and B, the plots in A series do not receive any manure, but to the B plots farmyard manure is applied at the rate of 200 maunds per acre. A plots were sown on the 19th, and B plots on the 20th of October.

Ploughing was done four times, nine and five inches deep respectively, with the improved plough: and six times, three inches deep, with country plough. Plots A were weeded twice and B plots only once. They were in both cases watered three times.

In the A plots series, Nos. 3 and 18 did not germinate well, and in series B plots 1 and 2 similarly suffered.

The statement shows that in all cases deep ploughing has given a better yield and that the plots with manure have produced more than the unmanured ones.

This result corroborates the facts found in previous years.

RABI STATEMENT No. VI.—*Ploughing experiment with wheat.*

| | Number of plot per farm map. | Treatment. | Cost of ploughing per acre. | Produce per acre. | | | | Increase or decrease per acre over the plots ploughed with country plough. | | | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Grain. | | Straw. | | In grain. | | In strw. | | |
| | | | | Average for previous 5 years. | This year. | Average for previous 5 years. | This year. | Average for previous 5 years. | This year. | Average for previous 5 years. | This year. | |
| | | | Rs. a. p. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | |
| A. | Ad- 1 | Ploughed 5" deep 4 times with improved plough. | 3 0 0 | 556 | 694 | 1,125 | 1,335 | +23 | +49 | +43 | +125 | The A plots have not received any kind of manure since they were started. To this may be attributed the low outturn of past years. B plots have received manure since 1888. |
| | Ad- 2 | Ploughed 3" deep 6 times with country plough. | 6 0 0 | 533 | 645 | 1,082 | 1,210 | ... | ... | ... | ... | |
| | Ad- 3 | Ploughed 3" deep 8 times with country plough. | 6 0 0 | 509 | 661 | 1,245 | 1,065 | ... | ... | ... | ... | |
| | Ad- 4 | Ploughed 9" deep 4 times with improved plough. | 3 0 0 | 516 | 920 | 1,041 | 1,710 | —83 | +259 | —204 | +645 | |
| B. | Ad- 1/2 | Ploughed 9" deep 4 times with improved plough. | 3 0 0 | 580 | 1,418 | 1,225 | 2,754 | +157 | +284 | +269 | +283 | |
| | Ad- 2/2 | Ploughed 5" deep 4 times with improved plough. | 3 0 0 | 494 | 1,616 | 1,014 | 2,870 | +71 | +480 | +58 | +349 | |
| | Ad- 3/2 | Ploughed 3" deep 8 times with country plough. | 6 0 0 | 423 | 1,134 | 956 | 2,521 | ... | ... | ... | ... | |

RABI STATEMENT VII.—This experiment was for five years, which time has now expired. It is to ascertain the value of mustard and cotton cake used as manure against the dung obtained from cattle fed on the same cakes.

These plots were sown on the 22nd of October, being ploughed twice with the improved and twice with country plough. Owing to dryness of the season three waterings were given, weeding was done only once as the fields were not foul.

In this series plot No. 1 failed to germinate well.

The result shows that in all cases but two the manured plots have yielded more than the unmanured ones in the series and that cake seems to have given better result than the dung obtained from cattle fed on the same cake.

RABI STATEMENT No. VII.—*Manure experiment with cotton seed, cake and cowdung.*

| | Number of plot per farm map. | Manure applied per acre. | Value of manure per acre. | Produce per acre. | | | | Increase or decrease over unmanured plot per acre, | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Grain. | | Straw. | | In grain. | | In straw. | |
| | | | | Average for previous 4 years | This year. | Average for previous 4 years | This year. | Average for previous 4 years | This year. | Average for previous 4 years. | This year. |
| | | | Rs a. p. | lbs | lbs. | lbs. | lbs. | lbs, | lbs. | lbs. | lbs. |
| A. | 10C | Mustard cake 5 maunds ... | 6 11 0 | 1,009 | 1,178 | 1,776 | 2,992 | −85 | +224 | −469 | +860 |
| | 10B | Ditto 10 „ ... | 13 6 0 | 1,083 | 1,391 | 2,004 | 2,697 | −11 | +437 | −241 | +565 |
| | 10A | Plain cowdung 200 „ ... | 6 0 0 | 1,047 | 1,242 | 2,353 | 2,303 | −47 | +288 | +108 | +171 |
| | 11C | Cake fed dung 50 „ ... | 2 0 0 | 1,053 | 1,157 | 2,106 | 2,463 | −41 | +203 | −139 | +331 |
| | 11B | Ditto 100 „ .. | 4 0 0 | 1,593 | 949 | 2,870 | 1,924 | +499 | −5 | +625 | −208 |
| | 11A | No manure ... ... | ... | 1,094 | 954 | 2,245 | 2,132 | ... | ... | ... | ... |
| B. | 27e 1 | Cotton seed-fed dung 50 maunds | 2 0 0 | 1,200 | 1,120 | 2,705 | 2,000 | +246 | −40 | +370 | −360 |
| | 27e 2 | Ditto ditto 100 „ ... | 4 0 0 | 1,813 | 1,340 | 2,536 | 2,387 | +299 | +180 | +210 | +27 |
| | 27f 1 | Plain cowdung 200 „ ... | 6 0 0 | 1,383 | 1,360 | 2,759 | 2,540 | +369 | +147 | +424 | +180 |
| | 27f 2 | Perished cotton seed 5 „ ... | 6 11 0 | 1,047 | 1,270 | 1,936 | 2,827 | +33 | +113 | +463 | +467 |
| | 27g 1 | Ditto ditto 10 „ ... | 13 6 0 | 1,282 | 1,213 | 2,611 | 2,573 | +268 | +53 | +213 | +213 |
| | 27g 2 | No manure ... ... | ... | 1,014 | 1,160 | 2,335 | 2,360 | ... | ... | ... | ... |

RABI STATEMENT VIII.—This experiment is to ascertain for what time or for how many years the residue of a fertilizer remains available for wheat. The statement shows the residual effect of the artificial manures which had been applied to the plots for four consecutive years up to 1885; after that year no manure of any kind has been given.

This experiment is maintained in two series of 16 plots, A and B. A series consists of 6 plots and B of 10. It is to continue for five years, the present is the fourth year.

The plots with the usual treatment (as stated in foregoing cases) were sown on the 20th and 22nd October.

The plots Nos. 2, 5 and 6 of the A, and Nos. 4 and 7 of the B, did not germinate well. In the B series cowdung again has given the best results.

RABI STATEMENT No. VIII.—*Experiment as to the residual value of various manures (wheat sown).*

| | Number of plot per farm map. | Manure applied per acre. | Value of manure per acre. | Produce per acre. | | | | Increase or decrease over unmanured plot per acre. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Grain. | | Straw. | | In grain. | | In straw. | |
| | | | | Average for previous three years. | This year. | Average for previous three years. | This year. | Average for previous three years. | This year. | Average for previous three years. | This year. |
| | | | | lbs. | lbs | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. |
| A. | V1 | Calcic superphosphate 180 lbs, ammonic chloride 130 lbs, potassic sulphate 90 lbs., calcis sulphate 96 lbs. per acre. | ... | 910 | 968 | 1,514 | 1,549 | +177 | +224 | +129 | +266 |
| | V2 | All but calcis superphosphate ... ... | ... | 821 | 823 | 1,321 | 1,452 | +88 | +79 | −64 | +169 |
| | V3 | Ditto ammonic chloride ... ... | ... | 733 | 943 | 1,402 | 1,621 | ... | +199 | +17 | +338 |
| | V4 | Ditto potassic sulphate ... ... | ... | 874 | 871 | 1,526 | 1,621 | +141 | +127 | +141 | +338 |
| | V5 | Ditto calcis sulphate ... ... ... | ... | 785 | 702 | 1,316 | 1,307 | +52 | −42 | −69 | +25 |
| | V6 | Unmanured ... ... ... | ... | 733 | 744 | 1,385 | 1,283 | ... | ... | ... | ... |
| B. | 37A | Cowdung ... ... ... | ... | 1,250 | 856 | 2,549 | 1,520 | +528 | +112 | +1126 | +200 |
| | 37B | Poudrette ... ... ... | ... | 972 | 688 | 1,948 | 1,328 | +250 | −56 | +525 | +8 |
| | 37C | Mustard cake ... ... ... ... | ... | 911 | 664 | 1,859 | 1,288 | +189 | −80 | +436 | −32 |
| | 37D | Woollen refuse ... ... ... | ... | 932 | 656 | 1,968 | 1,224 | +210 | −88 | +545 | −98 |
| | 37E | Cowdung and bonedust ... ... | ... | 984 | 704 | 1,997 | 1,160 | +262 | −40 | +574 | −160 |
| | 37F | Compost ... ... ... | ... | 916 | 648 | 1,819 | 1,264 | +194 | −96 | +396 | −56 |
| | 37G | Indigo ploughed in ... ... ... | ... | 915 | 632 | 1,883 | 1,184 | +193 | −120 | +460 | −136 |
| | 37H | Saltpetre ... ... ... | ... | 980 | 744 | 1,867 | 1,376 | +258 | ... | +444 | +56 |
| | 37I | Ammonic chloride ... ... ... | ... | 968 | 736 | 2,041 | 1,368 | +246 | −8 | +618 | +48 |
| | 37J | No manure ... ... ... | ... | 722 | 744 | 1,423 | 1,320 | ... | ... | ... | ... |

RABI STATEMENT IX.—Determination of the effect of kainit on wheat. It was applied at the rate of four maunds to the acre (*a*) with green hemp ploughed in, (*b*) with farm yard manure, and (*c*) with woollen refuse.

The seed in all plots of series A germinated and kept on well. In B series plot No. 2 did not germinate well and plot No. 1 was injured a little by whiteants.

The statement No. IX gives the result. It shows that kainit with hemp has given the largest yield, and in all cases its produce has exceeded the unmanured plot.

RABI STATEMENT No. IX.—*Experiment with kainit on wheat.*

| Number of plot per farm map. | Manure applied per acre. | Value of manure per acre. | Produce per acre. | | | | Increase or decrease per acre over unmanured plot, | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Grain. | | Straw. | | In grain. | | In straw. | |
| | | | Average for previous year. | This year. | Average for previous year. | This year. | Average for previous year. | This year. | Average for previous year. | This year. |
| | | Rs. a. p. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. |
| A. | Green hemp ploughed in for manure and kainit 4 maunds. | 11 8 0 | 1,065 | 1,839 | 2,335 | 3,267 | —616 | +689 | —955 | +1,307 |
| B. | Only green hemp ploughed in ... | 3 4 0 | 968 | 1,779 | 1,960 | 3,170 | —713 | +629 | —1,330 | +1,210 |
| C. | No manure ... ... ... | ... | 1,681 | 1,150 | 3,290 | 1,960 | ... | ... | ... | ... |
| 14a. | Farmyard manure 200 maunds and kainit 4 maunds. | 14 4 0 | 1,812 | 1,402 | 3,857 | 2,501 | +131 | +252 | +567 | +541 |
| 14c | Woollen refuse 200 maunds and kainit 4 maunds. | 14 4 0 | 750 | 1,227 | 2,154 | 2,602 | —931 | +77 | —1,136 | +642 |
| 14b | Farmyard manure 200 maunds alone ... | 6 0 0 | *Nil.* | 1,403 | *Nil.* | 2,966 | *Nil.* | +313 | *Nil.* | +1,006 |
| 14d | Woollen refuse 200 maunds alone ... | 6 0 0 | ... | 1,436 | ... | 2,919 | ... | +286 | ... | +959 |

RABI STATEMENT X.—This experiment is to contrast the produce of a field (*a*) grazed by sheep when the plants reach the height of one foot, and (*b*) of a field nibbled at the same stage, with a field left untouched.

The same kind of wheat (Muzaffarnagar) under the same treatment was sown in all the plots. The statement No. X contains the result, which this year is in favour of the field left untouched.

*Rabi Statement No. X.*

| Number of plot per farm map. | Treatment. | Produce per acre. | | | | Increase or decrease per acre over the plot C, | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Grain. | | Straw. | | In grain. | | In straw. | |
| | | Average for previous year. | This year. | Average for previous year. | This year. | Average for previous year. | This year. | Average for previous year. | This year. |
| | | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. |
| 35Aa | Grazed by sheep when one foot high ... | 1,016 | 1,102 | 3,340 | 3,399 | —25 | —67 | +630 | —299 |
| 35Ab | Nibbled by sickle ditto ... ... | 1,089 | 1,122 | 3,412 | 2,881 | —48 | —47 | +702 | —817 |
| 35Ac | Left untouched ... ... ... | 1,041 | 1,169 | 2,710 | 3,698 | ... | ... | ... | ... |

RABI STATEMENT XI.—This is the experiment of sowing wheat after the Jethro Tull or Lois Weeden system. In this wheat is sown in lines on raised-up strips of land.

In a piece of land of 1,936 square yards, 21 strips were made, 11 raised, 10 depressed. In the latter lucerne and pease were sown, which did not give any crop. The result is again in favour of the ordinary way of sowing.

This experiment will be tried no more.

*Rabi Statement No. XI.*

| Number of plot per acre | Mode of sowing. | Produce per acre. | | | | Increase or decrease per acre over the plot cultivated after country fashion, | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Grain. | | Straw. | | In grain. | | In straw. | |
| | | Average for previous year. | This year. | Average for previous year. | This year. | Average for previous year. | This year. | Average for previous year. | This year. |
| | | lbs. | lbs. | lbs. | lbs | lbs | lbs. | lbs. | lbs. |
| 26A | Sown after Jethro Tull system. (Wheat—on the raised strips ... Pease—on the depressed strips ... Lucerne— ditto ditto ...) | 537 | 850 | 887 | 1,585 | −515 | −573 | −1,658 | −1,435 |
| 26C | Sown after country fashion ... ... ... | 1,052 | 1,423 | 2,545 | 3,020 | ... | ... | ... | ... |

Rabi Statement XII.—This experiment is to contrast the productive power and vitality of five varieties of wheat compared with the indigenous variety grown in Cawnpore.

The varieties of the wheat sown were :—

(1) Muzaffarnagar.
(2) Adelaide.
(3) Buxar.
(4) Sindhi.
(5) Red nursery (English).

They were sown in six plots each of 750 square yards side by side. All the plots received the same kind and the same amount of manure ; and the same number of ploughings, weedings and waterings were given to each plot.

This year Muzaffarnagar wheat heads the list in yield and Buxar comes next.

English wheat, though raised with acclimatized seed grown on the farm for the last two years, has given the poorest crop. Last year Buxar was at the top of the list.

Rabi Statement No. XII.—*Experiment with different varieties of wheat.*

| Number of plot per farm map | Variety of wheat | Produce per acre. | | | | Increase or decrease per acre over the indigenous variety, | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Grain. | | Straw | | In grain | | In straw | |
| | | Average for previous year. | This year. | Average for previous year. | This year. | Average for previous year. | This year. | Average for previous year. | This year. |
| | | lbs | lbs. | lbs | lbs. | lbs | lbs | lbs. | lbs. |
| 39a | Muzaffernagar wheat ... ... ... | 1,070 | 2,272 | 1,996 | 2,581 | +223 | +1,220 | −625 | +71 |
| 39b | Adelaide ditto ... ... ... | 871 | 1,155 | 2,829 | 2,568 | +24 | +103 | +208 | +58 |
| 39c | Buxar ditto ... ... ... | 825 | 1,465 | 1,847 | 2,717 | −22 | +413 | −774 | +207 |
| 39d | Sindhi ditto ... ... ... | 807 | 1,007 | 2,329 | 2,859 | −40 | −45 | −292 | +349 |
| 39e | Mundia (country) wheat ... ... ... | 847 | 1,052 | 2,621 | 2,510 | ... | ... | ... | ... |
| 39f | English red wheat ... ... ... | ... | 458 | ... | 1,226 | ... | −594 | ... | −284 |

RABI STATEMENT XIII.—This experiment is to determine the produce of four varieties of barley. The result is again in favor of country barley.

Though the country barley has always produced more, yet the other varieties fetch a higher price. The chocolate colored barley is expected to be popular in European markets.

RABI STATEMENT No. XIII.—*Experiment with barley.*

| Number of plot per farm map. | Variety of barley. | Produce per acre. | | | |
|---|---|---|---|---|---|
| | | Grain. | | Straw. | |
| | | Average for previous 2 years. | This year | Average for previous 2 years. | This year. |
| | | lbs. | lbs. | lbs. | lbs. |
| 38A | Green huskless barley ... ... ... | 1,076 | 1,110 | 2,150 | 1,600 |
| 38B | Chocolate colored barley ... ... ... | 1,027 | 1,684 | 2,205 | 2,517 |
| 38C | White huskless barley (Rasuli jau) ... ... | 1,177 | 1,363 | 1,910 | 2,116 |
| 38D | Country barley ... ... ... | 1,974 | 1,949 | 4,050 | 1,775 |

RABI STATEMENT XIV.—This experiment is to determine the effect of gypsum on leguminous crops like gram and pease.

This was a very bad year on the farm for leguminous crops. The result obtained cannot be considered satisfactory. However, the statement shows that in both cases gypsum has done good to the crops.

RABI STATEMENT No. XIV.—*Experiment with gypsum applied to pease and gram.*

| No of plot per farm map | Crop. | Manure applied per acre. | Value of manure per acre. | Produce per acre. | | Increase or decrease due to gypsum. | |
|---|---|---|---|---|---|---|---|
| | | | | Grain. | Straw | Grain | Straw. |
| | | | Rs a. p | | | | |
| 27A | Gram ... | Farmyard manure 100 maunds ... | 3 0 0 | 1,068 | 1,258 | ... | ... |
| 27B | Do. ... | Farmyard manured 50 maunds and gypsum 4 maunds. | 8 8 0 | 1,332 | 1,065 | +264 | —193 |
| 27C | Pease ... | Farmyard manure 100 maunds ... | 3 0 0 | 247 | 817 | ... | ... |
| 27D | Do. ... | Farmyard manure 50 maunds and gypsum 4 maunds. | 8 8 0 | 310 | 1,065 | +63 | +248 |

RABI STATEMENT XV.—For the last three years potatoes have been added to the list of experiments. The experiment is to determine the effect of certain special manures for potatoes.

The field after being prepared according to the method in vogue in this part of the country, was divided into five equal plots. All of the plots were manured with

farmyard manure at the rate of 200 maunds per acre. In addition to this, to four out of five plots in the series, four special manures were applied. All of them were sown with a variety of potato called here "Madrasi." The seed was obtained from Farukhabad. It was sown on the 7th of October.

The plots were ploughed twice with the improved plough and twice with the country. They were watered six times, weeded, hand-hoed and ridged-up three times.

In plots Nos. 3 and 4 seed did not germinate well, the plants appeared after the first irrigation but did not thrive well. The crop in plot No. 2 was very good both in quantity and quality.

The statement shows that woollen refuse has given the best result : last year poudrette with sulphate of iron came out first.

RABI STATEMENT No. XV.—*Experiment with potatoes.*

| Number of plot per farm map. | Manure applied per acre. | Value of manure. | Produce per acre. | | Increase or decrease per acre over the plot sown after country fashion. | |
|---|---|---|---|---|---|---|
| | | | Average for previous 2 years. | This year. | Average for previous 2 years. | This year. |
| | | Rs. a. p | lbs. | lbs. | lbs. | lbs. |
| 29H 1 | Poudrette 200 maunds and sulphate of iron 27 seers. | 10 15 0 | 7,993 | 10,486 | +2,287 | +1,944 |
| 29H 2 | Woollen refuse 200 maunds and gypsum 4 maunds. | 13 0 0 | 7,006 | 11,074 | +1,300 | +2,522 |
| 29G 1 | Poudrette 200 maunds and kainit 6½ maunds. | 21 7 0 | 5,016 | 9,454 | —690 | +902 |
| 29G 2 | Castor oil cake 10 maunds and gypsum 4 maunds. | 17 0 0 | 6,703 | 9,436 | +997 | +884 |
| 29F 1 | Sown after country fashion ... | ... | 5,706 | 8,552 | ... | ... |

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# INDEX OF THE FARM MAP.

| Number of the plot as on the map. | Name of the plot. | Nature of present experiment on the plot. | Number of the tabular statement in the report. | Remarks. |
|---|---|---|---|---|
| 1 to 7 | *Nil* ... | No experiment ... ... | ... | |
| Aa (13 plots) | Green soiling, No. I. | Green manure experiment with wheat... | Rabi IV ... | Permanent. |
| 8A and 8B | *Nil* ... | No experiment ... ... | ... | |
| 9 | *Nil* ... | Ditto ... ... ... | | |
| 10A to 10C and 11A to 11C | *Nil* ... | Wheat experiment with cake and farm-yard manure. | Rabi VII... | For 5 years. |
| 11D | *Nil* ... | No experiment ... ... | ... | |
| 12A and 12B | *Nil* ... | Ditto ... ... ... | ... | |
| Ab (6 plots) | *Nil* ... | Experiment as to the effect of certain manures on cotton. | Kharíf VI, | Ditto. |
| 13A and 13B | *Nil* ... | No experiment ... ... | ... | |
| 14a to 14d | *Nil* ... | Experiment with kainit on wheat ... | Rabi $\frac{IX}{B}$ ... | Ditto. |
| 15 | *Nil* ... | No experiment ... ... | ... | |
| M series (8 plots) | *Nil* ... | Miscellaneous manure series ... | Rabi V ... | Permanent. |
| 16A to 16C | *Nil* ... | No experiment ... ... | ... | |
| A C (4 plots) | *Nil* ... | Ditto ... ... ... | | |
| Ad (4 plots) | Ploughing series. | Ploughing experiment with wheat ... | Rabi $\frac{VI}{A}$ ... | Ditto. |
| 17 | *Nil* ... | No experiment ... ... | ... | |
| Ba1 and Ba2 | Late sowing... | Experiment in early and late cotton sowing. | Kharíf VIII, | For 5 years. |
| V1 to V6 | Ville series ... | Experiment as to the residual value of various manures (wheat sown) | Rabi $\frac{VIII}{A}$... | Ditto. |
| 18A and 18B | *Nil* ... | No experiment ... ... | ... | |
| 19a to 19h | Early sowing, | Experiment in early and late cotton sowing. | Kharíf VIII, | Ditto. |
| 20A to 20C | *Nil* ... | No. experiment ... ... | ... | |
| 21A to 21F | *Nil* ... | Ditto ... ... ... | ... | |
| 22 | *Nil* ... | Ditto ... ... ... | ... | |
| 23 | *Nil* ... | Ditto ... ... ... | ... | |
| 24a to 24h | *Nil* ... | Experiment (1) in the yield of different varieties of sugarcane, and (2) in native and West Indian methods of sowing. | Kharíf $\frac{IX}{I}$, | Ditto. |
| A 1 a (13 plots) | Kharíf alternate series. | Manure experiment with maize ... | Kharíf II, | Permanent. |
| R (13 plots) | Rabi standard series. | Manure experiment with wheat ... | Rabi I ... | Ditto. |
| A B C | *Nil* ... | Experiment with kainit on wheat ... | Rabi $\frac{IX}{A}$ ... | For 5 years. |
| K (13 plots) | Kharíf standard series. | Manure experiment with maize ... | Kharíf I ... | Permanent. |
| A 1 b (13 plots) | Rabi alternate series. | Ditto ditto wheat ... | Rabi II ... | Ditto. |
| 25 | *Nil* ... | No experiment ... ... | ... | |
| 26A and 26C | Jethro Tull system. | Experiment in method of sowing (wheat.) | Rabi XI ... | For 5 years. |

| Number of the plot as on the map. | Name of the plot. | Nature of present experiment on the plot. | Number of the tabular statement in the report. | Remarks. |
|---|---|---|---|---|
| 26B1, 26B2, 26D1 and 26D2 | *Nil* ... | Maize sown after American fashion ... | Kharif IV, | For 5 years. |
| 27A to 27D | *Nil* ... | Experiment with gypsum applied to peas and gram | Rabi XIV, | Ditto. |
| 27c1 to 27g2 | *Nil* ... | Manure experiment with cotton seed and farm yard manure (wheat sown). | Rabi $\frac{VII}{B}$ ... | Ditto. |
| 27h to 27j | *Nil* ... | No experiment ... ... | ... | |
| 28a to 28f | *Nil* ... | Ditto ... ... ... | ... | |
| $\frac{Ad}{2}1$ to $\frac{Ad}{2}3$ | Ploughing series No. II. | Ploughing experiment with wheat ... | Rabi $\frac{VI}{B}$ ... | Permanent. |
| P1 to P12 | New green manure series. | Determination of the effect of gypsum on indigo. | Rabi X ... | For 5 years. |
| P13 to P18 | *Nil* ... | No experiment ... ... | ... | |
| 29A to 29E and 29F2 | *Nil* ... | Ditto ... ... ... | ... | |
| 29F1, 29G2, 29G1 29H2 and 29H1 | *Nil* ... | Experiment with potatoes ... | Rabi XII... | Ditto. |
| 29I to 29K | *Nil* ... | No experiment ... ... | ... | |
| 30A to 30I | *Nil* ... | Ditto ... ... ... | ... | |
| 31A to 31D and 31F to 31I and 33A to 33E | Green soiling No. II. | Green manure experiment with wheat... | Rabi $\frac{XIV}{B}$ ... | Permanent. |
| 31E and 31J | *Nil* ... | No experiment ... ... | ... | |
| 32A to 32L | Green soiling, No. III. | Green manure experiment with wheat... | Rabi $\frac{IV}{A}$ ... | Ditto. |
| 34A and 34B | *Nil* ... | No experiment ... ... | ... | |
| N1 to N8 | N series ... | Miscellaneous manure experiment with maize. | Kharif III, | Ditto. |
| 35Aa to 35Ac | *Nil* ... | Experiment of feeding young wheat by sheep. | Rabi X ... | For 5 years. |
| 35B | *Nil* ... | No experiment ... ... | ... | |
| 36a to 36h | *Nil* ... | Experiment to determine the economic value of peri (2nd year crop). | Kharif $\frac{IX}{II}$, | Ditto. |
| 37A to 37J | *Nil* ... | Experiment as to the residual value of various manures (wheat sown). | Rabi $\frac{VIII}{B}$, | Ditto. |
| 38A to 38D | *Nil* ... | Experiment with barley ... ... | Rabi XIII, | Ditto. |
| 38E | *Nil* ... | No experiment ... ... | ... | |
| 39a to 39f | *Nil* ... | Experiment with different varieties of wheat. | Rabi XII, | Ditto. |
| 40A and 40B | *Nil* ... | No experiment ... ... | ... | |
| 41Aa to 41Ah. | *Nil* ... | Experiment with different varieties of imported cotton seed. | Kharif VII, | Ditto. |
| 41B | *Nil* ... | No experiment ... ... | ... | |
| 42A to 42E | *Nil* ... | Ditto ... ... ... | ... | |
| $\frac{Ac}{A}5$ to $\frac{Ac}{A}7$, $\frac{Ac}{A}5$ to $\frac{Ac}{A}7$, $\frac{M\ T}{1}$ to $\frac{M\ T}{17}$ and F1 to F8. | Miscellaneous kharif series. | Experiment in outturn of miscellaneous kharif crop. | Kharif XI. | |